

The deep-water Pycnogonida of the Safari cruises to the Indian ocean

by Jan H. Stock

Abstract. — The Safari I and II cruises to the Indian ocean yielded four species of deep-water Pycnogonida : *Nymphon femorale* Fage, 1956, *N. laterospinum* Stock, 1963 (new to the Indian ocean), *Colossendeis minor* Schimkewitsch, 1893 (new to the Indian ocean), and *Pallenopsis (Bathypallenopsis) safari* n. sp. (off Sri Lanka, 1 035 m). Notes are provided on the type-specimens to *Colossendeis macerrima minor* (raised to specific rank) and *C. gardineri* Carpenter, 1907.

Résumé. — Au cours des campagnes Safari I et II dans l'océan Indien, quatre espèces de Pycnogonides profonds ont été recueillies : *Nymphon femorale* Fage, 1956, *N. laterospinum* Stock, 1963 (nouveau pour l'océan Indien), *Colossendeis minor* Schimkewitsch, 1893 (nouveau pour l'océan Indien), et *Pallenopsis (Bathypallenopsis) safari* n. sp. (du Sri Lanka à 1 035 m). Les spécimens types de *Colossendeis macerrima minor* (élevé ici au niveau spécifique) et de *C. gardineri* Carpenter, 1907, ont été réexaminés et leurs descriptions complétées.

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INTRODUCTION

A small but interesting collection of Pycnogonida of the Safari I and II cruises was sent to me by the Centre National de Tri d'Océanographie Biologique (CENTOB, Brest).

The cruises were organized by the Muséum national d'Histoire naturelle, Paris (responsible for the biological data : Claude MONNIOT).

I am indebted to C. Allan CHILD (U.S. National Museum, Washington) for the loan of the type-specimens of *Colossendeis macerrima minor* and to Mrs Joan ELLIS (British Museum (Natural History), London) for the loan of the holotype of *C. gardineri*.

Nymphon femorale Fage, 1956

Nymphon femorale Fage, 1956 : 161-163, figs. 5-7 ; BELYAEV, 1966 : 77 ; STOCK, 1968 : 32, fig. 10 i-j ; TURPAEVA, 1969, table 14 ; MARSHALL, 1979 : 204, fig. 87.

MATERIAL. — 1 ♀, Safari II, st. 8 (CP 11), Indian ocean, Carpenter Ridge, 01°41'N 87°06'E, 4 360 m, 2.VIII.1981.

DISTRIBUTION

Previously recorded from the Indian ocean between the Seychelles and Sri Lanka, Banda Sea. The present record comes from the same general area and the same general bathymetrical range.

Nymphon laterospinum Stock, 1963

N. laterospinum Stock, 1963 : 322-323, fig. 1 ; Stock, 1978a : 211-212, fig. 9a-d ; CHILD, 1982 : 42-43.

MATERIAL. — 2 specimens, Safari I, st. 1 (DSO1), Indian ocean off Durban, 29°48.8'S 34°32.7'E, 2 608 m, 21.VIII.1979.

REMARKS

The species is widely distributed in non-polar part of the Atlantic (off southern Africa, off the Rio de la Plata, Bay of Biscay, SW of Ireland, Newfoundland Basin). The Safari record is the first from the Indian ocean.

Colossendeis minor Schimkewitsch, 1893 (new rank)

(Figs. 1-6)

C. macerrima minor Schimkewitsch, 1893 : 30-32, pl. I figs. 7-10, pl. II figs. 14-15 ; TURPAEVA, 1971 : 289-290, pl. 7 figs. 6-7.

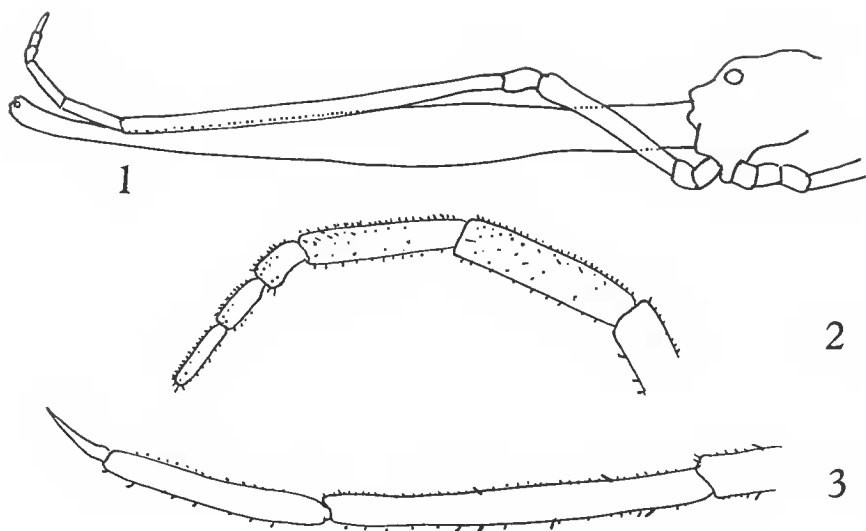
C. macerrima p.p., BOUVIER, 1917 : 10-13 ; STOCK, 1975 : 985-987 (Pillsbury st. 526 only).

MATERIAL EXAMINED. — 1 specimen, Pillsbury st. 526, Gulf of Panamá, 06°53'N 79°27'W, 06°49'N 79°29'W, 3 193-3 200 m ; 5.V.1967. — 5 specimens, Safari II, st. 3 (CPO5), west of Sri Lanka, 06°59'N 78°50'E, 2 540 m, 27.VIII.1981. — 1 specimen, Safari II, st. 4 (CPO6), west of Sri Lanka, 08°11'N 79°03'E, 1 035 m, 28.VII.1981. — 1 specimen, Safari II, st. 4 (CPO7), west of Sri Lanka, 08°29'N 79°19'E, 1 095 m, 28.VII.1981. — 1 specimen, Safari II, st. 14 (CP12), Indian ocean (Ninety-East Ridge), 02°54'S 89°43'E, 3 344 m, 6.VIII.1981. — 1 specimen, Safari II, st. 17 (CP15), Indian ocean (Ninety-East Ridge), 06°17'S, 89°11'E, 2 895-3 000 m, 9.VIII.1981.

REMARKS

C. macerrima minor has been regarded by all authors, following BOUVIER's (1917) opinion, synonymous with *C. macerrima* s. str.

However, in the last few years the knowledge on the taxonomy of the North Atlantic deepwater species of *Colossendeis* has increased (e.g. STOCK, 1978b), leading to the recognition that BOUVIER's concept of a broad definition of *C. macerrima* was no longer tenable. The first step was the reinstatement of *C. leptorhynchus* Hoek, 1881, as a species distinct from *C. macerrima*, and the unravelling of the synonymy of *C. cucurbita* Cole, 1909 (= *C. "gigas — leptorhynchus"* Hoek, 1881).



FIGS. 1-3. — *Colossendeis minor* Schimkewitsch, 1893, from Safari II — CPO5 : 1, frontal part of the body, from the left ; 2, distal palp segments ; 3, distal segments of second leg.

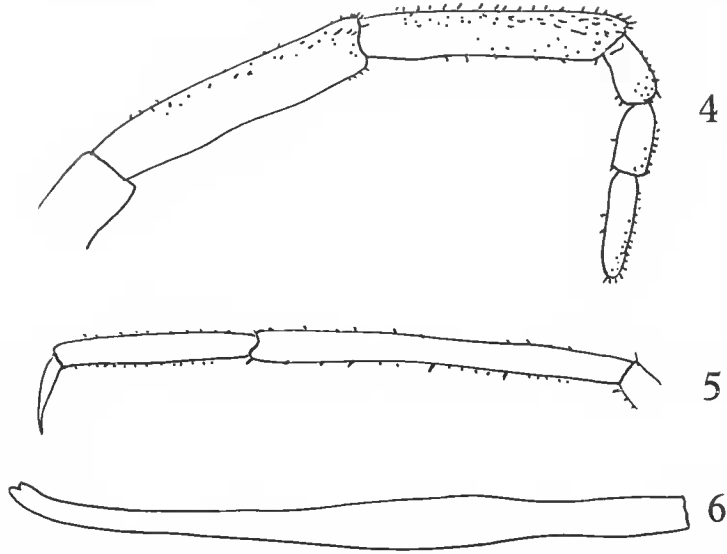
The next step will be taken in this paper, in which it will be shown that *C. macerrima minor* and *C. gardineri* Carpenter, 1907, show small but consistent differences in comparison with typical Atlantic samples of *C. macerrima*. For the moment there is no indication whether these differences are of specific or of subspecific nature. Typical specimens of *C. macerrima* s. str. are predominant in the Atlantic ocean, whereas both *C. gardineri* and *C. macerrima minor* occur in the Indo-Pacific oceans. Pending more detailed information about the distribution of these forms, I prefer to consider them distinct at species level.

DISTINCTION

I have re-examined four samples (syntypes) of SCHIMKEWITSCH's original material (figs. 4-6), now preserved in the U.S. National Museum, viz. from Albatross stations 3374 (1 specimen), 3375 (1 specimen), 3381 (2 specimens), and 3398 (1 specimen). The details about these stations are correctly enumerated by SCHIMKEWITSCH (with two emendations : (1) st. 3398 is listed as "près de San Francisco", this is the Cabo de San Francisco, Ecuador, and not San Francisco, California ; (2) from st. 3374, two specimens are listed, both present in the USNM, but only one belongs to this species, the other being a specimen of *C. angusta* Sars).

These syntypes, from the eastern Pacific off Colombia and Ecuador, are very similar to the Safari material from Sri Lanka and the Ninety-East Ridge in the Indian ocean. They differ from Atlantic *C. macerrima* in (a) the proboscis (tip narrower than the basal

part, distinctly upcurved), and (b) the distal palp segment which is much longer than the penultimate segment. They agree with *C. macerrima* in the relative lengths of palp segments 6 and 7 ($7 \leq 6$) and in the short 3rd palp segment. See table 1.



FIGS. 4-6. — *Colossendeis minor* Schimkewitsch, 1893, syntype, from Albatross st. 3381 : 4, distal palp segments ; 5, distal segments of first leg ; 6, proboscis from the left.

DISTRIBUTION

Previously found in the eastern tropical Pacific off Central and South America. The present records extent the range to Mid Indian Basin.

TABLE 1. — Salient differences between certain taxa of the *Colossendeis macerrima*-group.

	<i>macerrima</i>	<i>leptorhynchus</i>	<i>gardineri</i>	<i>minor</i>
proboscis	nearly straight ; tip equal in diameter to the base		tip upcurved, narrower than the base	
ratio palp segments 3 : 5	1 : 1.75 to 1.90		1 : 1.33	1 : 2.2
ratio palp segments 6 : 7	$6 \geq 7$	$7 > 6$	$6 \geq 7$	$6 \geq 7$
palp segm. 10	not much longer than segment 9			much longer than segment 9
tarsal and pro-podal sole	with inconspicuous spinules		with stronger spines	with inconspicuous spinules

Colossendeis gardineri Carpenter, 1907

(Figs. 7-9)

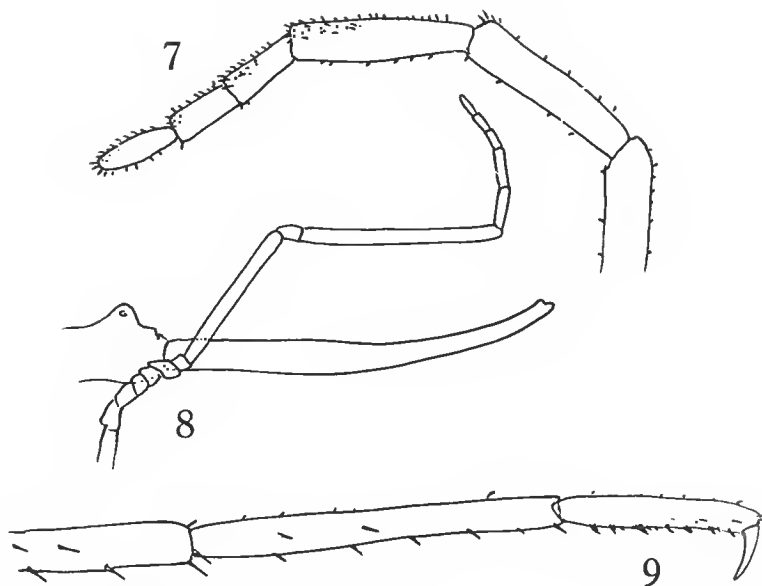
C. gardineri Carpenter, 1907 : 98-99, pl. 13 fig. 20-24.

C. macerrima p.p., CALMAN, 1923 : 267-268.

MATERIAL. — 1 specimen (holotype), Indian ocean, Saya de Malha Bank (Percy Sladen Trust Exped., st. C21), 450 fms (BMNH 1908.1.6 : 10 and : 20).

DISTINCTION

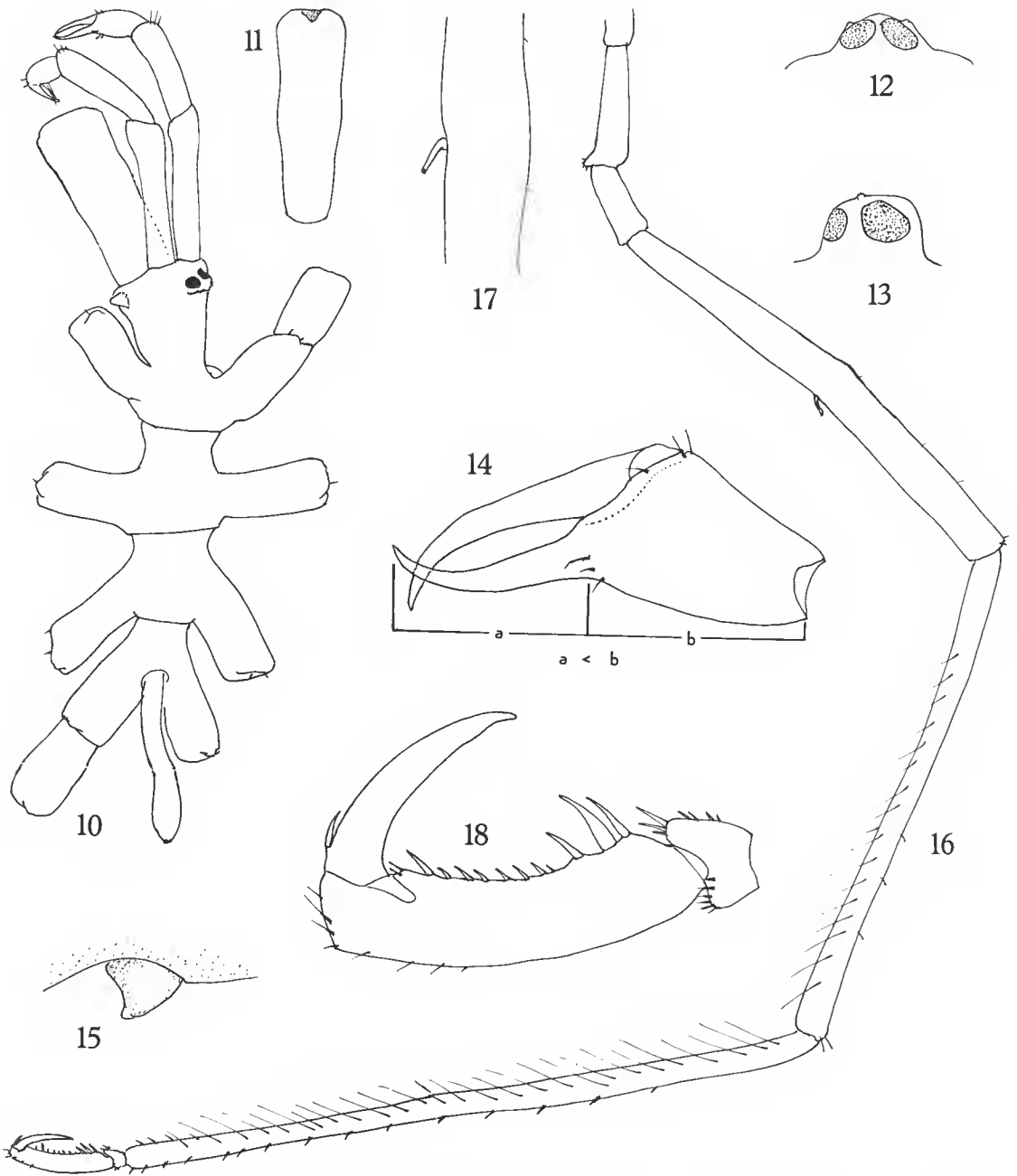
The proboscis of this species is similar in outline to that of *C. minor*, but it is less elongate. The main distinctions with *C. minor* are found in the palp : segment 10 hardly longer than segment 9 ; segment 8 more elongate ; segment 5 much less elongate (1.2 to 1.25 times as long as segment 3). An additional difference is found in the armature of the legs, which carry several stronger spines, in particular on the ventral margin of tarsus and propodus (whereas in both *C. minor* and *C. macerrima* only minute spinules occur) (see table 1).



FIGS. 7-9. — *Colossendeis gardineri* Carpenter, 1907, holotype, from Percy Sladen Trust Expedition st. C21 : 7, distal palp segments ; 8, frontal part of the body, from the right ; 9, distal leg segments.

CALMAN, 1923, recorded two specimens (as *C. macerrima*) from the Laccadive and Andaman seas which are similar to *C. gardineri* in the shape of the proboscis and in the relative lengths of palp segment 3 and 5.

C. gardineri has not been found during the Safari cruises.



FIGS. 10-18. — *Pallenopsis (Bathypallenopsis) safari* n. sp., ♂ holotype : 10, trunk, dorsal ; 11, proboscis, ventral ; 12, ocular tubercle, frontal ; 13, ocular tubercle, from the right ; 14, chela ; 15, right palp, lateral ; 16, third leg ; 17, cement gland duct of fourth leg ; 18, distal segments of fourth leg.

Pallenopsis (Bathypallenopsis) safari n. sp.

(Figs. 10-21)

MATERIAL. — 1 ♂ (oviger), holotype. Safari II, st. 4 (CP06), west of Sri Lanka, 08°11'N 79°03'E, 1 035 m, 28.VII.1981.

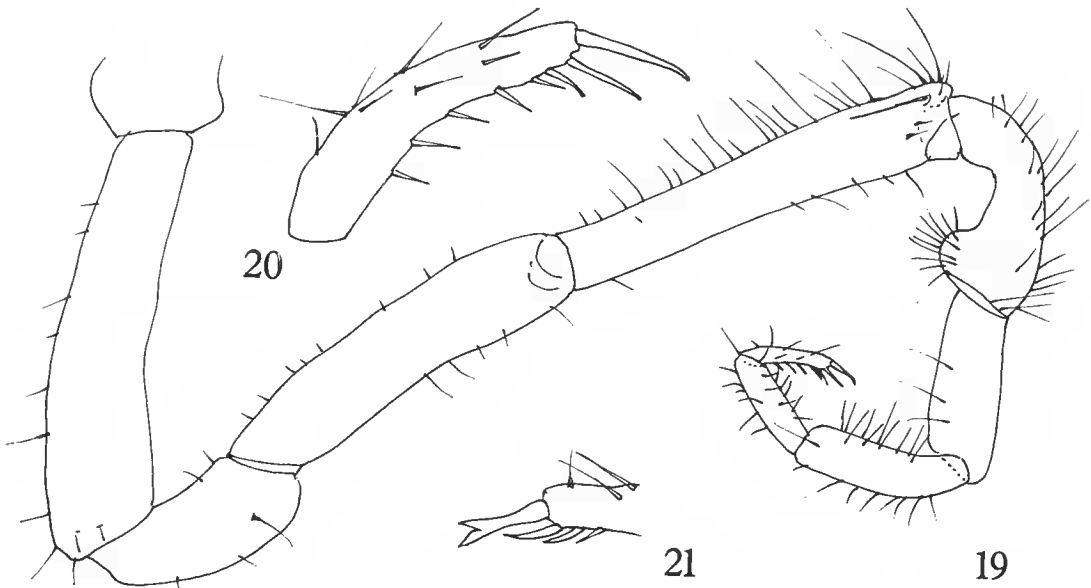
DESCRIPTION

Trunk completely segmented. Neck rather short. Ocular tubercle low, rounded with two small apical tubercles; eyes well-pigmented, the two frontal eyes larger than the two caudal ones. Lateral processes long, distally with an inconspicuously raised rim, carrying some minute spinules; space between the three anteriormost lateral processes large, between processes 3 and 4 narrow. Abdomen slightly bent, slightly directed upward; reaching to the distal end of coxa 1 of leg 4.

Proboscis largest at the top, narrowest at the base; practically glabrous.

Chelifore scape consisting of two subequal segments. Chela slender; fingers gaping, unarmed; immovable finger about as long as the palm.

Palp rudimentary, conical.



FIGS. 19-21. — *Pallenopsis (Bathypallenopsis) safari* n. sp., ♂ holotype: 19, right oviger (compressed under cover glass); 20, distal part of right oviger; 21, distal part of (probably anomalous) left oviger.

Oviger 10-segmented. Segment 2 longer than segment 4 and as long as segment 5. Segments 5 and 6 with numerous long setae; segment 6 curved, distally widened. Seg-

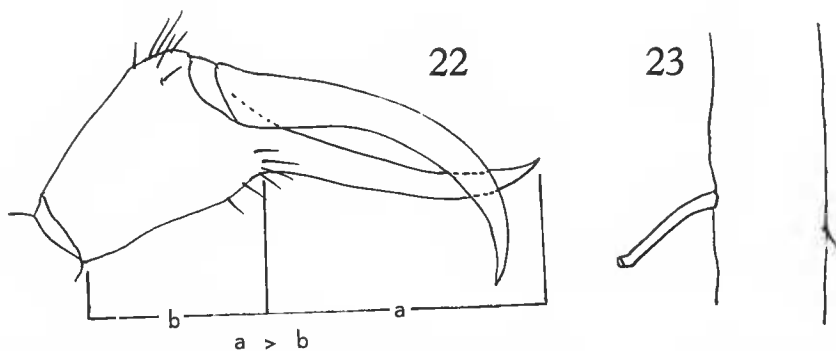
ments 7 to 10 progressively shorter ; 7 to 9 setiferous. Segment 10 slightly curved, slightly tapering ; distal claw thin (almost spiniform) ; subterminal spine also long ; ventral spines (in one row) shorter than the diameter of the segment. The distal claw of the left oviger is bifid, presumably due to an injury. Eggs small, arranged in a broad band, one on each oviger.

Legs slender. Coxa 2 elongate ; that of legs 3 and 4 with a small ventrodistal genital process. Femur practically unarmed ; cement gland duct ventral, much shorter than the diameter of the segment. Tibiae 1 and 2 with an anterior and posterior row of long setae and a dorsal and ventral row of spines ; tibia 2 the longest. Propodus slightly curved ; heel with 3 spines (one long) ; sole with 6 or 7 spines of a size and a somewhat larger distal spine. Claw long, slender ; auxiliary claws short.

Measurements (in mm). — Length (frontal margin cephalic somite to tip of abdomen), 11.4 ; length proboscis (ventral), 4.5 ; width (across 2nd lateral processes), 6.0. Third leg : coxa 1, 1.4 ; coxa 2, 5.2 ; coxa 3, 2.3 ; femur, 17.0 ; tibia 1, 16.1 ; tibia 2, 21.4 ; tarsus and propodus, 3.0 ; claw, 1.7.

REMARKS

This species belongs to the *longirostris*-group of the subgenus *Bathypallenopsis*, and is most closely related to the species possessing small auxiliary claws (Stoek, 1975 : 1032), viz. *P. (B.) longirostris* Wilson, 1881, *P. (B.) oscitans* (Hoek, 1881), and a dubious species, *P. (B.) plumipes* Meinert, 1899 (all from the Atlantic ocean). Since *plumipes* is poorly described, and might be synonymous with *longirostris* (see Stoek, 1981 : 463), it is left out of consideration.



FIGS. 22-23. — *Pallenopsis (Bathypallenopsis) oscitans* (Hoek, 1881), from Walvis st. 75 : 22, chela ; 23, femoral cement gland duct.

The main distinctive characters between *oscitans* and *longirostris* are found in oviger segment 10 (♀, ♂). This segment of the male of the new species, closely resembles that of *longirostris*. From both *oscitans* and *longirostris*, the new species differs by : (1) the much shorter femoral cement gland duct (as long as the femoral diameter in the Atlantic

taxa, much shorter in the new species) (compare figs. 17 and 23); (2) the shorter fingers of the chela (immovable finger much longer than the palm in the Atlantic taxa, shorter than the palm in the new species (compare figs. 14 and 22)); (3) the propodal armature (sole with a row of irregular short spines and 2 longer distal spines in the Atlantic species, with a row of spines of a size and 1 longer distal spine in the new species).

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Most references of papers published prior to 1978 can be found in the comprehensive bibliography of FRY & STOCK, 1978. Only those papers not included in this bibliography are listed below.

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